

Appl. No. 10/822,180
Amdt. Dated March 13, 2007
Reply to Office Action of January 19, 2007

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (currently amended): An optical pick-up device comprising:
a light source configured for emitting a linear polarized light beam with a ~~first type~~first type of polarized component and a ~~second type~~second type of polarized component;

a polarized light beam converter configured for converting the first type of polarized component of the linear polarized light beam into the second type of polarized component, the polarized light beam converter comprising a first micro lens array, a birefringent crystal, a second micro lens array located between the first micro lens array and the birefringent crystal, and a plurality of half-wave plates mounted on a surface of the birefringent crystal; each lens of the second micro lens array being a concave lens;

a first splitter configured for partially transmitting and partially reflecting the linear polarized light beam with the second type of polarized component;

a first collimating lens configured for converging the transmitted linear polarized light beam with the second type of polarized component onto an optical disc; and

a photo-detector configured for receiving a corresponding light beam reflected by the optical disc.

Claim 2 (original): The optical pick-up device in accordance with claim 1, further comprising a polarized light beam splitter located between

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the polarized light beam converter and the first splitter.

Claim 3 (original): The optical pick-up device in accordance with claim 1, further comprising a second collimating lens set between the light source and the polarized light beam converter.

Claim 4 (original): The optical pick-up device in accordance with claim 1, wherein the light source comprises a semiconductor laser.

Claim 5 (original): The optical pick-up device in accordance with claim 1, wherein the light source comprises a light emitting diode.

Claims 6-7 (canceled).

Claim 8 (currently amended): The optical pick-up device in accordance with claim 1[[7]], wherein each lens of the first micro lens array is a convex lens.

Claim 9 (canceled).

Claim 10 (currently amended): The optical pick-up device in accordance with claim 1[[7]], wherein the birefringent crystal is a yttrium vanadate crystal or a lithium niobate crystal.

Claim 11 (currently amended): The optical pick-up device in accordance with claim 1[[6]], wherein the half-wave plates are attached on the surface of the birefringent crystal by epoxy resin.

Claim 12 (currently amended): The optical pick-up device in accordance with claim 1, wherein the first splitter comprises a reflecting

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face configured for partially reflecting the linear polarized light beam with the second type of polarized component.

Claim 13 (original): The optical pick-up device in accordance with claim 1, wherein the first collimating lens is an aspheric lens.

Claim 14 (currently amended): The optical pick-up device in accordance with claim 1[[7]], wherein a distance between any two adjacent half-wave plates is equal to a height of each half-wave plate, and the height of each half-wave plate is equal with a width of light rays output from a corresponding lens of the second micro lens array.

Claim 15 (currently amended): An optical pick-up device comprising:
a light source configured for emitting a linear polarized light beam having a first kind of polarized component and a second kind of polarized component;

a polarized light beam converter configured for converting the first kind of polarized component of the linear polarized light beam into the second kind of polarized component; the polarized light beam converter comprising a first micro lens array, a second micro lens array, a birefringent crystal and a plurality of half-wave plates; the birefringent crystal defining a first surface and a second surface opposite to the first surface, the first and the second micro lens arrays being located adjacent to the first surface, and the plurality of half-wave plates being located adjacent to the second surface; each lens of the first micro lens array being a converging lens; the second micro lens array being located between the first micro lens array and the birefringent crystal, and a gap defined between the first micro lens array and the second micro lens array being smaller than a focal length of each lens of the first micro lens array;

a splitter aligned with the polarized light beam converter and

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configured for partially transmitting and partially reflecting the linear polarized light beam with the second kind of polarized component;

a collimating lens configured for converging the transmitted linear polarized light beam with the second kind of polarized component onto an optical disc; and

a photo-detector configured for receiving a corresponding light beam reflected by the optical disc.

Claims 16-17 (canceled).

Claim 18 (currently amended): The optical pick-up device in accordance with claim 15[[17]], wherein a distance between any two adjacent half-wave plates is equal to a height of each half-wave plate, and the height of each half-wave plate is equal to a width of light rays output from a corresponding lens of the second micro lens array.